

REMARKS

Claims 1-27 are currently pending in this application and have been rejected. Claims 1-2, 17-18, and 27 have been cancelled. New claims 28-40 have been added herewith.

Specification

The disclosure is objected to because of informalities. More specifically, the Office objects to page 1, and asks that the specification be amended to indicate that 09/721,664 is now U.S. Patent No. 6,376,053. Applicants have amended the specification accordingly, and request that the rejection of the application on the basis of this informality be withdrawn.

Claim Objections

Claim 16 is objected to as being of improper dependent form for failing to further limit the subject matter of the previous claim. Claim 16 has been amended to depend from claim 13 and should now overcome this objection. Applicants request that the rejection of the application on the basis of this informality be withdrawn.

Claim Rejections - 35 U.S.C. §112, second paragraph

Claims 3-16 and 19-27 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite. More specifically, claims 3 and 5 are indefinite because -- according to the XMR -- both claims require a resin composition that is solid at ambient temperature but also require that the resin composition comprise an epoxy resin that is liquid at ambient temperature. Claims 4 and 6 -- according to the XMR-- have the same problem because of the requirement of an additional liquid resin other than the liquid epoxy.

As an initial matter, claim 27 has been cancelled rendering the rejection moot as to this claim. Claims 3 and 5 have been amended so that limitation (a) is “a liquid epoxy resin” rather than “an

epoxy resin that is liquid at ambient temperature.” Applicants submit the above amendments solely for the purpose of expediting prosecution of this application. The solid resin composition of the present invention along with a support film base layer create an adhesive film which is subject to lamination conditions including temperature and pressure. Even though the resin composition is solid at ambient temperatures, it contains liquid components such as a liquid epoxy resin. It is possible to have a solid contain liquid components (i.e., a sponge’s absorption of water) and remain a solid. The specification refers to a liquid resin as a resin in a flowable state (see p. 5, lines 9-10). In fact the liquid epoxy resin is an essential component to impart thermal flowability during lamination on to an internal-layer circuit board (see p. 8, lines 8-11). In short, the mixture of elements (a)-(c) in claim 3 and elements (a)-(d) in claim 5 render the resin composition solid.

Regarding dependent claims 4 and 6, the additional liquid resin other than the liquid epoxy, as discussed above, can still create a solid resin composition. Thus, the mixture of elements (a)-(c) in claim 3, from which claim 4 depends and elements (a)-(d) in claim 5, from which claim 6 depends render the resin composition solid.

Applicants therefore submit that the claims fully comply with 35 U.S.C. §112, second paragraph and request that the rejections of claims 3-16 and 19-27 on this basis be withdrawn.

Claim 7 is rejected as indefinite for having improper Markush language. Claim 7 has been amended to include “and” between inorganic fillers “and” organic fillers. Claim 7, as amended, should now overcome the rejection, and Applicants respectfully request the rejection of claim 7 be withdrawn.

Double Patenting Rejections

Applicants are advised that should claim 17 be found allowable, claim 25 will be objected

to under 37 C.F.R. §1.75 as being a substantial duplicate thereof. In an effort to advance prosecution, Claim 17 has been cancelled. Cancellation of claim 17 should render the potential objection of claim 25 moot.

Applicants are advised that should claim 26 be found allowable, claim 27 will be objected to under 37 C.F.R. §1.75 as being a substantial duplicate thereof. In an effort to advance prosecution, Claim 27 has been cancelled. Cancellation of claim 27 should render the potential objection of claim 27 moot.

Claims 18, 22 and 23 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 4, 16, 13, and 12 of U.S. Patent 6,376,053 in view of JP 05-136575. Claim 18 has been cancelled. Cancellation of claim 18 should render the rejection moot. No terminal disclaimer is being filed at this time, but Applicants are willing to file a terminal disclaimer should claims 22-23 be determined to be allowable.

Claim Rejections - 35 U.S.C. §102

Claims 1, 2, 17 and 18 are rejected under 35 U.S.C. §102(b) as being anticipated by JP 05-136575. Claims 1, 2, 17, and 18 have been cancelled and render the rejection moot. Applicants respectfully request the rejection be withdrawn.

Claim Rejections- 35 U.S.C. §103

Claims 13, 15, 16, and 25-27 are rejected under 35 U.S.C. §103(a) as being unpatentable over JP 05-136575. As an initial matter, claim 27 has been cancelled. Cancellation of claim 27 should render the rejection of this claim moot.

The JP 05-136575 reference is cited by the Office as teaching an inter-laminar adhesive film comprising a support film base layer and a resin composition which is laminated under heat and

pressure to an internal-layer of a circuit board having an electric conductor layer pattern. More specifically, the Office states that JP 05-136575 teaches laminating the adhesive film to the printed circuit board with a temperature of 130 degrees Celsius and a laminating pressure of 4.5 kg/cm². It is noted that the JP 05-136575 reference is silent as to atmospheric pressure. Rather, the JP 05-136575 reference discloses a method of making an insulating layer by lamination of film under normal pressure and photo curing. But it is the Office's position that one of skill in the art would have been motivated to determine the necessary working conditions for laminating the film. Furthermore, JP 05-136575 is directed to make sure that no pores or voids exists in the laminate. Thus, one of skill in the art would supposedly have accomplished this by bonding in a reduced atmosphere of the claimed range. Applicants traverse this rejection. With the cancellation of claims 1 and 2 and the amendment of claims 13 and 15 to depend from claim 3, and claim 16 to depend from claim 13, Applicants submit the claims are patentable over the JP 05-136575 reference.

However, in order to make out a prima facie case of obviousness against a claim, the Office must meet three criteria. First, for a single cited prior art reference, the reference must teach or suggest each and every element of the rejected claim. Second, there must be some suggestion or motivation to modify the cited reference to achieve what is claimed. Third, there must be a reasonable expectation that if the reference were modified, such modification would successfully result in the invention. Applicants submit that the Office cannot meet any of these criteria with respect to the claims rejected in this application.

The JP 05-136575 reference does not teach the limitation of atmospheric or reduced pressure, nor does it teach the atmospheric or reduced pressure in the range of 1 to 20 mmHg. Furthermore, as the Office pointed out with respect to independent claims 3 and 5, the prior art cited

fails to suggest the claimed process for producing a multi-layer printed wiring board, particularly having an inter-laminar adhesive film that has a layer of resin composition that is solid at ambient temperature and comprising the claimed components (a)-(c) and (a)-(d). See Office Action at p. 11. The JP 05-136575 reference does not even hint or suggest that these components are possible or desirable. There is no suggestion that the resin composition disclosed in the JP 05-136575 reference comprises components (a)-(c) as claimed in claim 3, nor components (a)-(d) as claimed in claim 5. In addition, there is no suggestion in the reference that its teachings should be modified to include the steps which are claimed in the particular rejected dependent claims, either the steps required by claim 3 and claim 5, on which the rejected claims are dependent, or the additional limitations of claim 13, 15, 16 and 25-27. Applicants maintain, therefore, that the cited art does not teach or suggest the limitations of claims 13, 15, 16, and 25-27, and that the Office has not met and cannot meet its burden to show that each and every claim limitation of the rejected claims can be found in the prior art. For this reason the rejection of claims 13, 15, 16, and 25-27 should be withdrawn.

Claims 12, 14, and 24 were rejected under 35 U.S.C. §103(a) as being unpatentable over JP 05-136575 in view of JP 08-316642. Applicants traverse this rejection. With the cancellation of claims 1 and 2 and the amendment of claim 12 to depend from claim 3, Applicants submit the claims overcome the JP 05-136575 and JP 08-316642 references. The Office is attempting to combine here two references, both of which lack any teaching or suggestion as to several limitations of the rejected claims to achieve the method of this application. The Office cites the JP 05-136575 reference further for the teaching of peeling off the support film base layer, thermally curing the laminated resin, and plating a copper layer on the resin. JP 08-316642 is cited for teaching a method for lamination of an adhesive layer with a support film base layer to a printed circuit board, peeling

off the support base layer and laminating a copper foil onto the resin layer. Therefore, the Office contends that it would have been obvious to one of ordinary skill in the art to laminate a copper foil onto the resin layer after peeling off the support film base layer in the method of JP 05-136575. But the JP 05-136575 reference is silent with respect to laminating a copper foil onto the resin layer. A prima facie case of obviousness is established only when the Office can demonstrate that the cited art teaches each and every claim limitation. See M.P.E.P. §2143. The Office cannot meet this burden with respect to the claims of this application.

Furthermore, as the Office pointed out with respect to independent claims 3 and 5, the prior art cited fails to suggest the claimed process for producing a multi-layer printed wiring board, particularly having an inter-laminar adhesive film that has a layer of resin composition that is solid at ambient temperature and comprising the claimed components (a)-(c) and (a)-(d). The JP 05-136575 reference in combination with the JP 08-316642 reference does not even hint or suggest that these components are possible or desirable. There is no suggestion that the a resin composition such as that disclosed in the JP 05-136575 reference in combination with the lamination of a copper foil onto a resin layer disclosed in the JP 08-316642 reference comprise components (a)-(c) as claimed in claim 3, and dependent claim 12 nor components (a)-(d) as claimed in claim 5, and dependent claim 14. In addition, there is no suggestion in the references that both teachings should be modified to include the steps which are claimed in the particular rejected dependent claims, either the steps required by claim 3 and claim 5, on which the rejected claims are dependent, or the additional limitations of claim 12, 14, and 24. Applicants maintain, therefore, that the cited art does not teach or suggest the limitations of claims 12, 14, and 24, and that the Office has not met and cannot meet its burden to show that each and every claim limitation of the rejected claims can be found in the

prior art. For this reason the rejection of claims 12, 14, and 24 should be withdrawn.

Claim 7 is rejected under 35 U.S.C. §103(a) as being unpatentable over JP 05-136575 in view of Takahashi *et al.* (U.S. Patent 5,309,632). The JP 05-136575 reference is cited for the teaching noted above and further for the teaching of coating circuit boards with adhesives that contain scrubbing components such as rubber components and inorganic fillers as well as electroless plating catalysts such as metals. The Office contends it would have been obvious to one of skill in the art to include a scrubbing component or electroless plating catalyst in the resin composition with a desired percentage. Applicants traverse this rejection. With the cancellation of claims 1 and 2 and the amendment of claim 7 to depend from claim 3, Applicants submit claim 7 overcomes the JP 05-136575 and Takahashi *et al.* references.

Once again, the Office is attempting to combine here two references, both of which lack any teaching or suggestion as to several limitations of the rejected claims to achieve the method of this application. The Takahashi *et al.* reference fails to teach or suggest a resin having (I) at least one scrubbing component selected from the group consisting of rubber components, amino resins, inorganic fillers, and organic fillers or (ii) at least one electroless plating catalyst selected from the group consisting of metals, metal compounds, and inorganic compositions having metal or metal compounds absorbed or coated thereon.

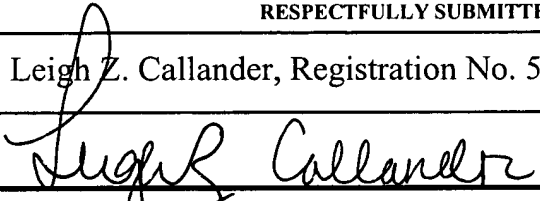
As stated above, the Office has indicated that the prior art cited fails to suggest the claimed process for producing a multi-layer printed wiring board, particularly having an inter-laminar adhesive film that has a layer of resin composition that is solid at ambient temperature and comprising the claimed components (a)-(c) and (a)-(d) as claimed in independent claims 3 and 5. The Office also pointed out that the Takahashi *et al.* reference fails to disclose weight percentages

of the scrubbing components and electroless plating catalysts in the resin composition as set forth in claim 7 of the present invention. See Office Action at p. 10. The Office seems to have assumed that because the Takahashi *et al.* reference discloses scrubbing components and electroless plating catalysts, that this is enough, when combined with the JP 05-136575 reference to render claim 7 obvious. The test, however, requires that the prior art supply, through teaching or suggestion, each and every limitation of the claim. The very most that could be accomplished if one combined what can be fairly suggested by the JP 05-136575 reference and the Takahashi *et al.* reference is a method using a resin composition without the limitations of (a)-(c) of claim 3 or (a)-(d) of claim 5 and without scrubbing components constituting 4 to 40% by weight and electroless plating catalysts 0.05 to 3% by weight as set forth in claim 7. The cited art does not disclose or suggest these limitations and these limitations cannot be derived from their teachings.

Applicants maintain that the Office cannot meet its burden to show that the cited art teaches or suggests each and every claim limitation or its burden to show motivation in the art to import these missing claim limitations into the methods which are taught by the cited references. Applicants submit that the rejection of claim 7 as obvious over the combination of the JP 05 136575 and the Takahashi *et al.* reference is not proper and should be withdrawn.

For the reasons above, Applicants request that the Office withdraw the rejection of claims 7, 12, 13, 14, 15, 16, and 24-27 under 35 U.S.C. §103(a) and allow the claims to proceed to issue.

In view of the above amendments and remarks, it is submitted that the claims are in condition for allowance. The Office is invited to telephone the undersigned to expedite allowance of this application.

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